

# Checkpoint

(Week 2)

## **Saturday (28/10/2023):**

- Searched about Big O notations and its types:  
<https://www.geeksforgeeks.org/analysis-algorithms-big-o-analysis/>
- Tried making my previous tasks more optimized and clean.

## **Sunday (29/10/2023):**

- We took classes and one of the main concepts of Object-oriented programming (encapsulation) in detail, we took as well the difference between classes and struct, and lastly we took the usages of “ **this** ” keyword.
- Revised the difference between passing by value, by reference, and by address.

## **Monday (30/10/2023):**

- We talked briefly about the main concepts of OOP. We took operator overload, using static before function declaration as well as scope resolution, and finally we talked about relationships and its types.
- Revised more about the relationships.

## **Tuesday (31/10/2023):**

- We took the difference between aggregation, composition, and association in detail. We talked about inheritance, polymorphism, protected access modifier, virtual function and abstract class.
- Tried solving the problem solving question on leetcode (removing elements).

## **Wednesday(1/11/2023):**

- We took SFML and how to link it to our projects.
- Searched on virtual keyword :  
<https://www.simplilearn.com/tutorials/cpp-tutorial/function-overriding-in-cpp#:~:text=Overriding%20occurs%20in%20a%20parent,used%20to%20override%20a%20function.>
- Searched about the difference between association, aggregation, and composition in more detail in code:  
<https://blog.devgenius.io/association-composition-and-aggregation-in-c-925465987061>

And learned a new way to instantiate an object:

```
class Car {  
public:  
    Car() : engine(new Engine()) {}  
    void startCar() {  
        engine->start():
```

## **Thursday(2/11/2023):**

- Searched the SFML documentation to solve the task given.

**Friday(3/11/2023):**

- Organized my checkpoint.
- Revised vector and it's built in functions:  
<https://www.geeksforgeeks.org/vector-in-cpp-stl/>
- Solved the problem on leetcode (Remove Element) and tried to solve it in a better way.